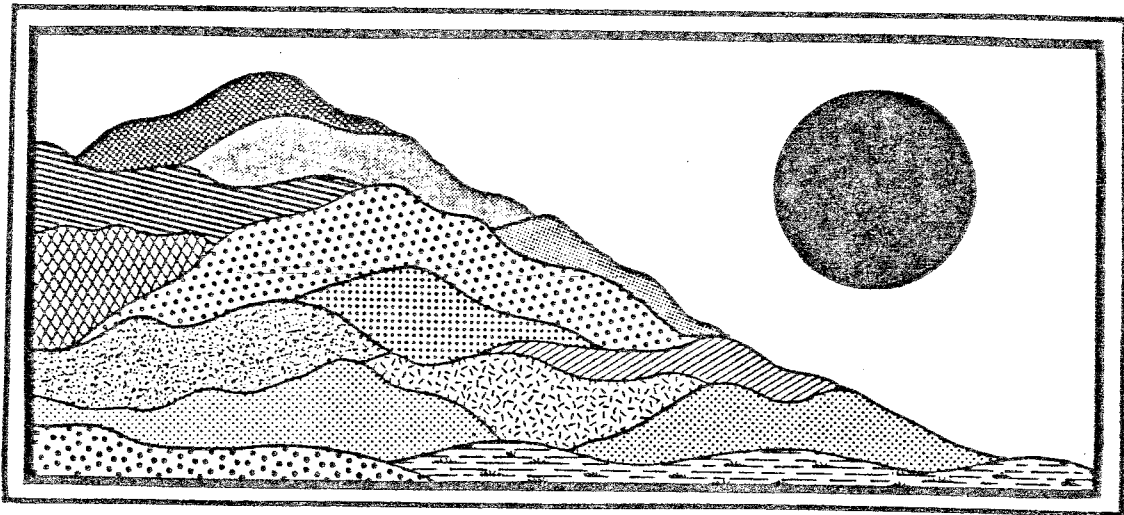


Forest Edge

Stafford, Connecticut

March 1987



ENVIRONMENTAL

REVIEW TEAM

REPORT

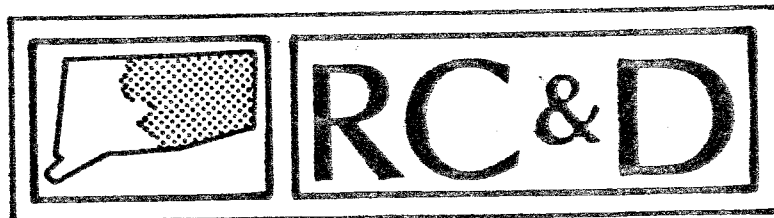
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Forest Edge

Stafford, Connecticut

Review Date: MARCH 4, 1987

Report Date: MARCH 1987



ENVIRONMENTAL REVIEW TEAM

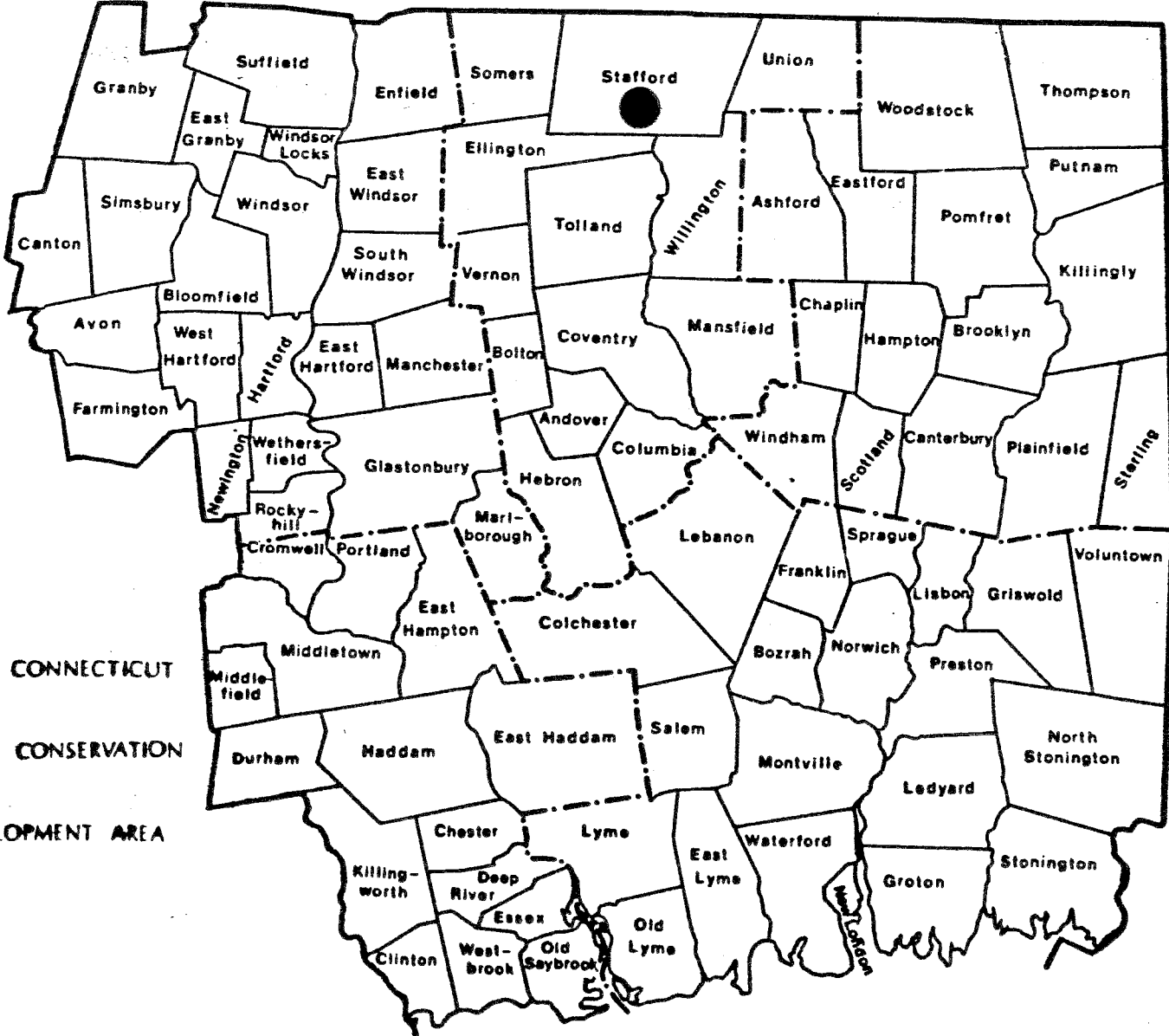
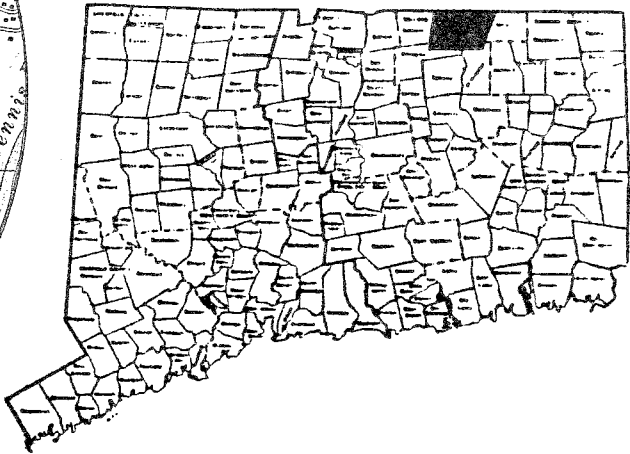
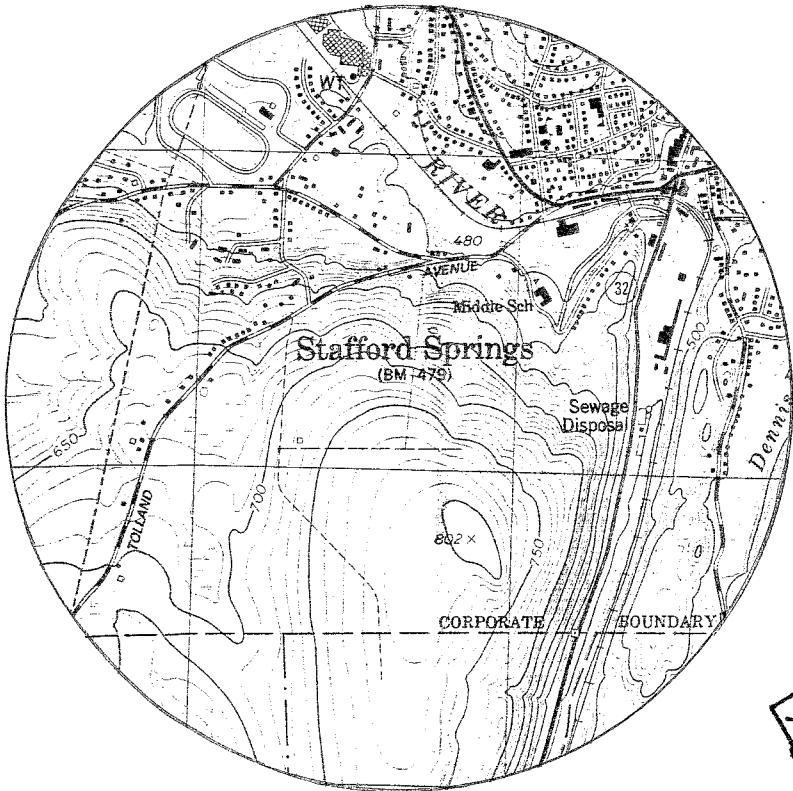
PO BOX 198

BROOKLYN, CONNECTICUT 06234

Site Location

FOREST EDGE CONDOMINIUMS

STAFFORD, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION
& DEVELOPMENT AREA

ENVIRONMENTAL REVIEW TEAM REPORT

ON

The Forest Edge Condominiums

Stafford, Connecticut

This report is an outgrowth of a request from the Stafford Planning and Zoning Commission to the Tolland County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Committee for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The ERT met and field checked the site on Wednesday, March 4, 1987. Team members participating on this review included:

Joe Neafsey	District Conservationist U.S.D.A. - Soil Conservation Service
Harry Siebert	Transportation Planner ConnDOT - Bureau of Planning
Anthony Sullivan	Planner CT. Office of Policy and Management
Elaine Sych	ERT Coordinator Eastern CT. RC&D Area
Bill Warzecha	Geologist DEP - Natural Resources Center

Prior to the review day, each Team member received a summary of the proposed project, a list of the Town's concerns, a location map, a topographic map, a soils map, a simplified site plan, and a traffic study. During the field review the Team members were given site plans. The Team met with, and were accompanied by members of the Planning and Zoning Commission, a Borough Officer, the Zoning Enforcement Officer, the landowner/developer and his attorney. Following the review, reports from each Team member were submitted to the ERT Coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site designs or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project--all final decisions and conclusions rest with the Town and landowner. This report identifies the existing resource base and evaluates its significance to the proposed development, and also suggests considerations that should be of concern to the developer and the Town. The results of this Team action are oriented toward the development of better environmental quality and the long-term economics of land use.

The Eastern Connecticut RC&D Executive Committee hopes you will find this report of value and assistance in making your decision on this proposed condominium development.

If you require any additional information, please contact:

Elaine A. Sych
ERT Coordinator
Eastern Connecticut RC&D Area
P. O. Box 198
Brooklyn, CT 06234
(203) 774-1253

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1. INTRODUCTION

The Eastern Connecticut Environmental Review Team has been asked by the Stafford Planning and Zoning Commission to perform an environmental review for a proposed continuation of a condominium development.

The proposed multi-unit residential development, known as the Forest Edge Condominiums, is located on +40 acres of land located on the south side of Tolland Avenue. At the present time there are 24 existing units, 240 more are proposed. These will be built over a several year period, and all will be served by public water and sewer.

The following sections of this report contain information and recommendations that are of concern to the Town and the developer. The Town asked that they be provided information on geology and geologic development concerns, soils, erosion and sediment control, drainage, land use and traffic access.

2. TOPOGRAPHY

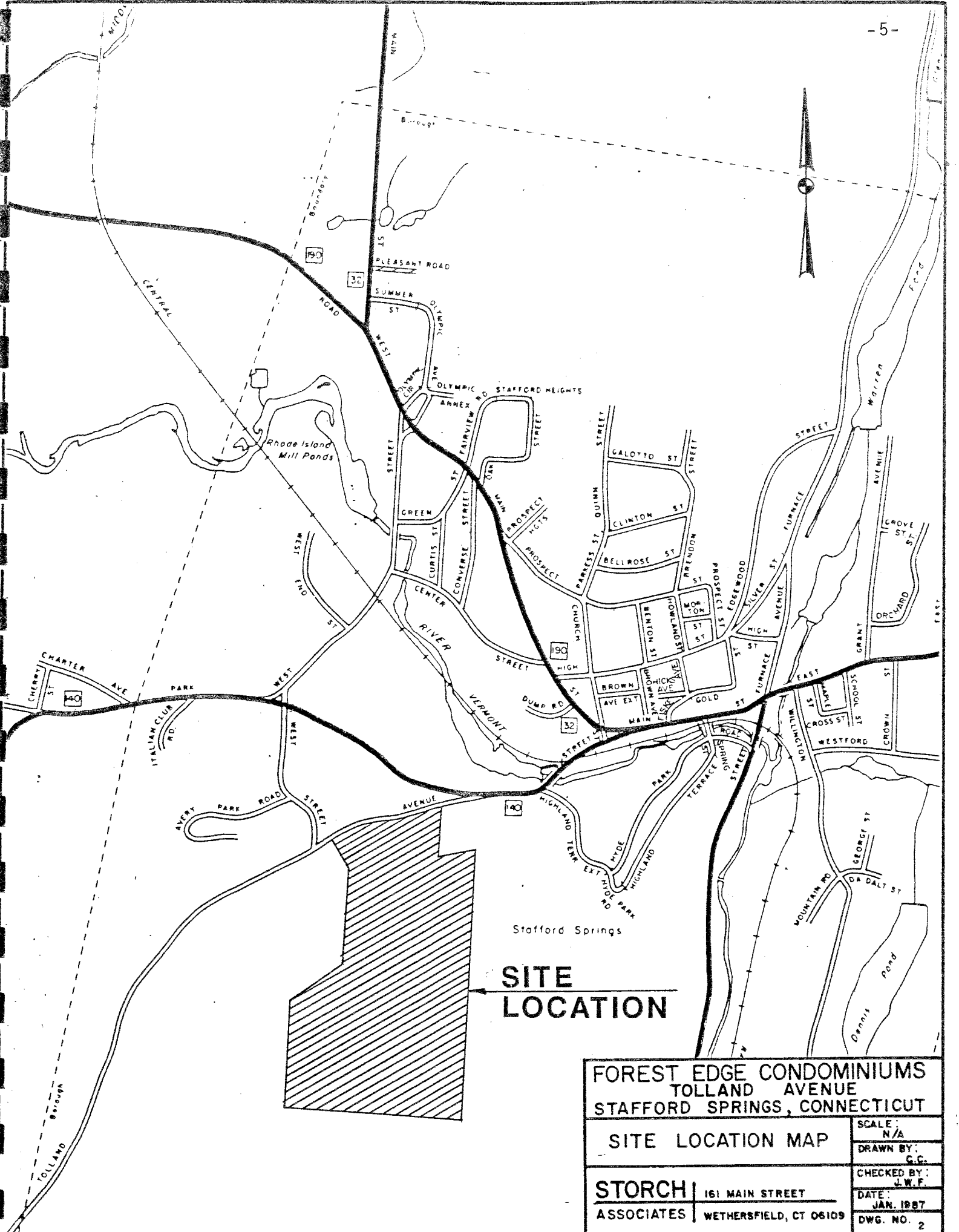
The proposed condominium site is located southwest of Stafford Springs center. The parcel, which is accessed off of Tolland Avenue comprises +40 acres at the northern end of Tolland Hill.

The land surface rises moderately to steeply from about the 550 foot contour interval along Tolland Avenue, to almost the 800 foot contour interval at the southern property boundary. The difference in relief from these two points is approximately 250 feet. The steepest slopes occur in the northern parts of the site.

No major streamcourses were visible during the field review. A few seasonal drainageways which form in topographic swales characterize the northeast section of the parcel. Surface water flowing in these drainageways is routed to the Middle River.

3. GEOLOGY

The site lies entirely within the Stafford Springs topographic quadrangle. A surficial geologic map (map GQ-1216, by Maurice Pease, Jr., 1975) for the quadrangle has been published by the Connecticut Geological and Natural History Survey. A bedrock geologic map for the quadrangle has not been published to date. However, there is preliminary bedrock geologic data for the quadrangle on file at the Department of Environmental Protection's Natural Resources Center in Hartford. Also referenced for bedrock geologic information was John Rodger's Bedrock Geological Map of Connecticut (1985).



**SITE
LOCATION**

**FOREST EDGE CONDOMINIUMS
TOLLAND AVENUE
STAFFORD SPRINGS, CONNECTICUT**

SITE LOCATION MAP

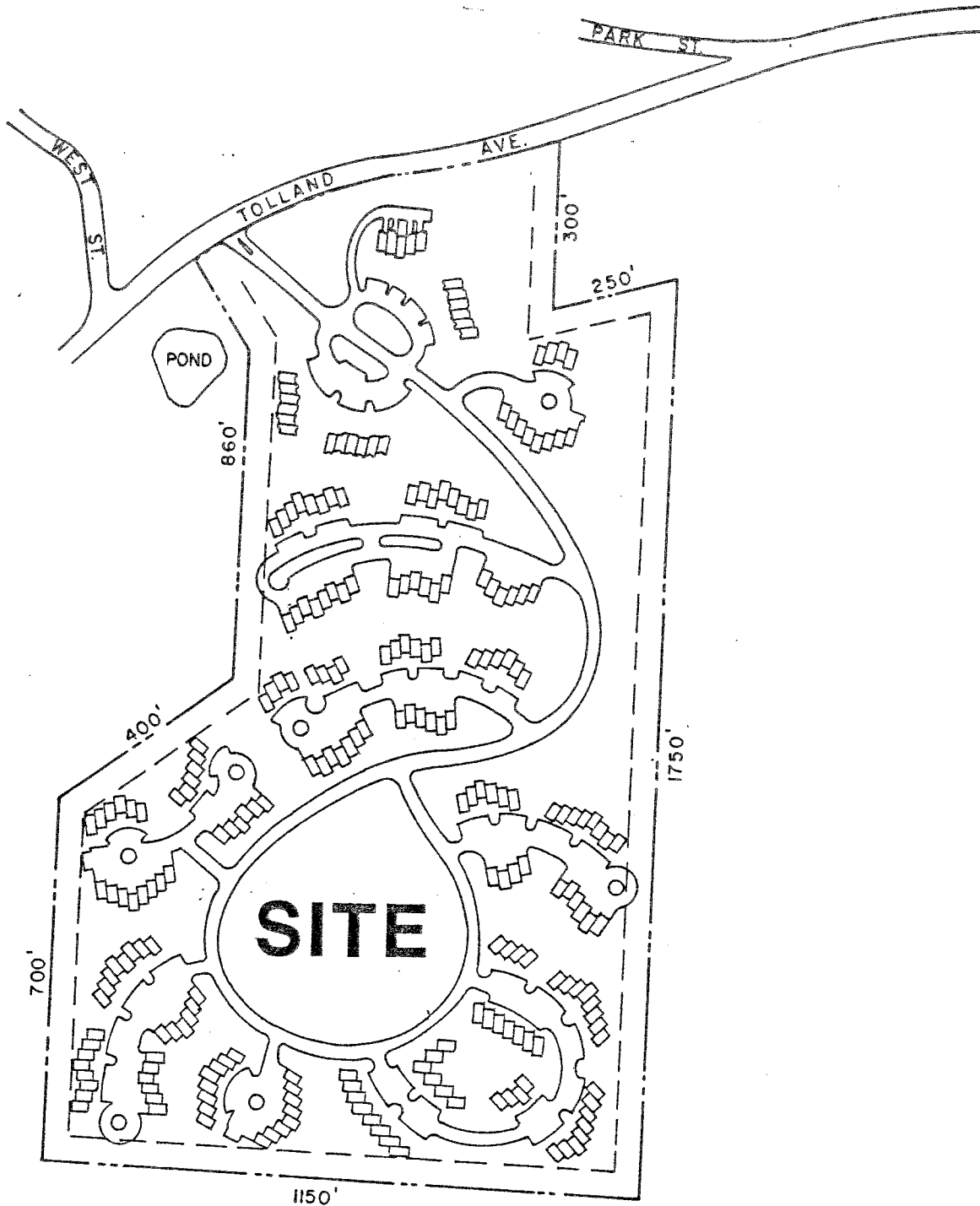
SCALE: N/A

DRAWN BY: G.C.

CHECKED BY: J.W.F.

STORCH ASSOCIATES | 161 MAIN STREET
WETHERSFIELD, CT 06109

DATE: JAN. 1987
DWG. NO. 2



FOREST EDGE CONDOMINIUMS
TOLLAND AVENUE
STAFFORD SPRINGS, CONNECTICUT

SITE PLAN

SCALE:
N/A

DRAWN BY:
F.M.W.

CHECKED BY:
J.W.F.

STORCH | 161 MAIN STREET

DATE:
JAN. 1987

ASSOCIATES | WETHERSFIELD, CT 06109

DWG. NO. 3

Based on geologic and soil mapping, it does not appear that the bedrock surface is exposed on the parcel. Snow-covered ground throughout the site concealed any possible low-lying bedrock exposures. It should be pointed out that the Soil Survey for Tolland County delineates an area of shallow to bedrock soils (HrC) in the northcentral parts of the site.

The bedrock core of the site consists of two distinct rock types; Monson Gneiss and Hamilton Reservoir Formation. These two rock types are separated by the Bone Mill fault zone, which bisects the property in a north-south direction. A fault is a break in the earth's crust along which movement occurred. As a result, the two rock types found within the site differ in age, mineralogy, and texture.

The western half of the site is underlain by very old crystalline metamorphic rock of Ordovician age (438-505 million years old) known as Monson Gneiss. The rock, generally gray in color, is weakly foliated. It is composed mainly of light colored minerals such as feldspar and quartz.

The eastern half of the site is underlain by rocks of Silurian-Devonian age. These rocks are slightly younger (360-438 million years old) than the Monson Gneiss. These rocks mainly consist of layered gneisses and schists.

"Schist" is a term given to a rock, which under high pressure and temperature conditions was altered in such a way that most of its mineral constituents were aligned parallel to each other. Parting surfaces are usually numerous and give the rock a slabby appearance.

"Gneiss" is a term given to a rock in which light-colored minerals alternate with layers of dark colored minerals. This mineral arrangement gives the rock a banded appearance.

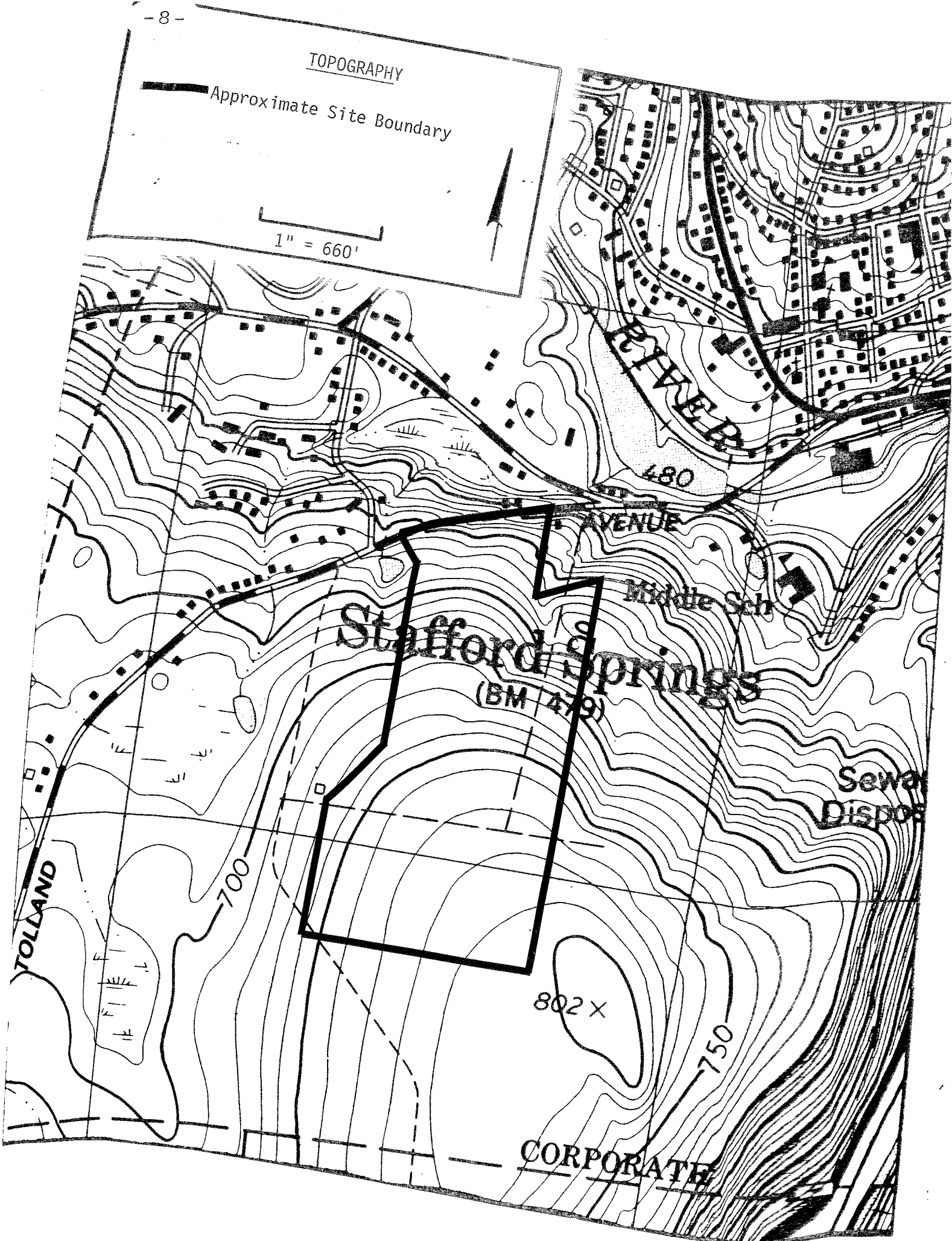
The rock underlying the site is probably the source of water to many homes throughout Stafford Springs, including homes contiguous to the property. According to present plans, the proposed condominiums will be served by a public water supply main made available by the Connecticut Water Company.

Bedrock is overlain in most parts of the site by sediments that were deposited directly from an ice sheet. These sediments, called till, are non-sorted (i.e., they are thoroughly mixed by grain size) and usually contain the full range of clay, silt, sand, gravel and boulders. Although the texture of the till varies, it is commonly sandy, stony and relatively loose in the upper few feet or in shallow-to-bedrock areas, and siltier and very compact at depth. It appears that the site lacks the silty, compact variety of till. Till is commonly called "hardpan", although this term also has a specific meaning in soils descriptions.

TOPOGRAPHY

Approximate Site Boundary

1" = 660'



TOLLAND

WILSON

AVENUE

Middle Sch

Stafford Springs
(BM 479)

Sewer
DISPOS

802 X

700

750

CORPORATE

480

BEDROCK GEOLOGY



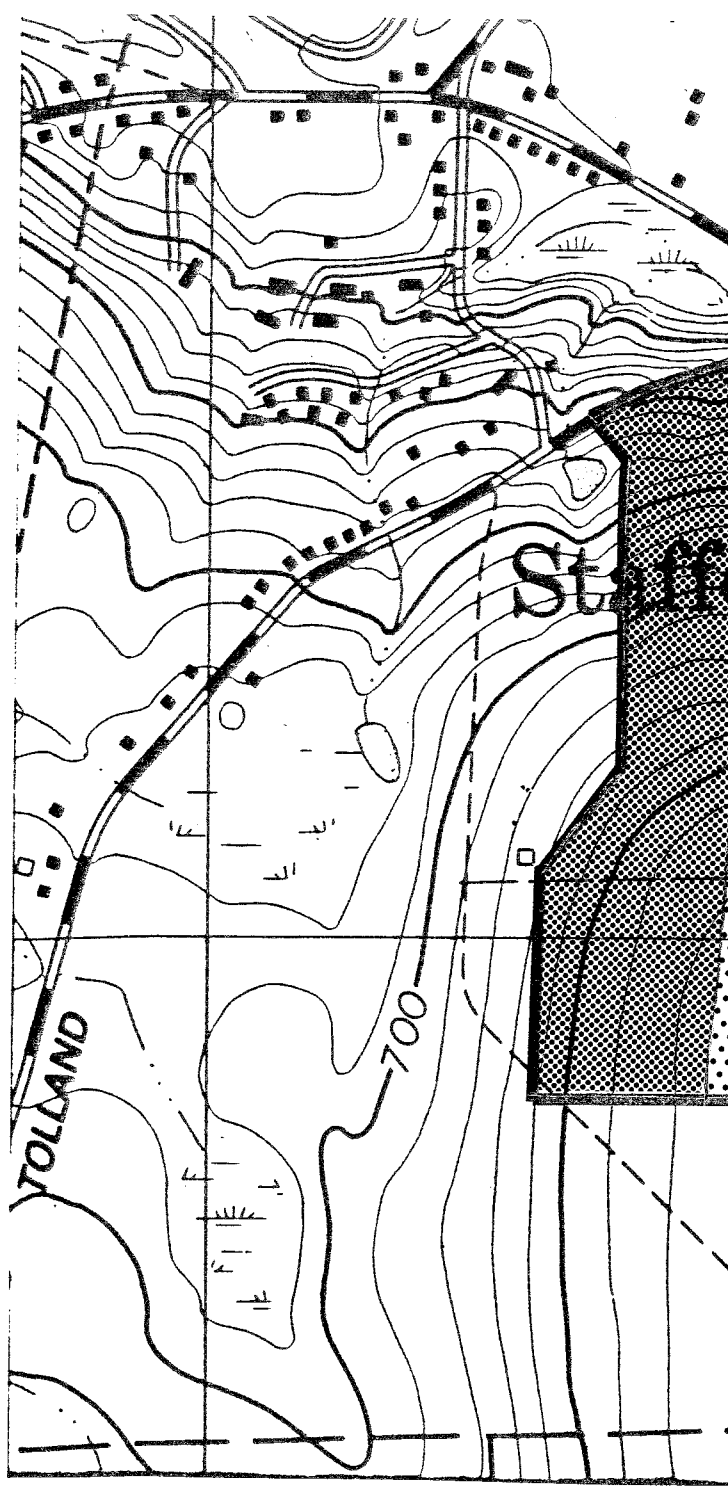
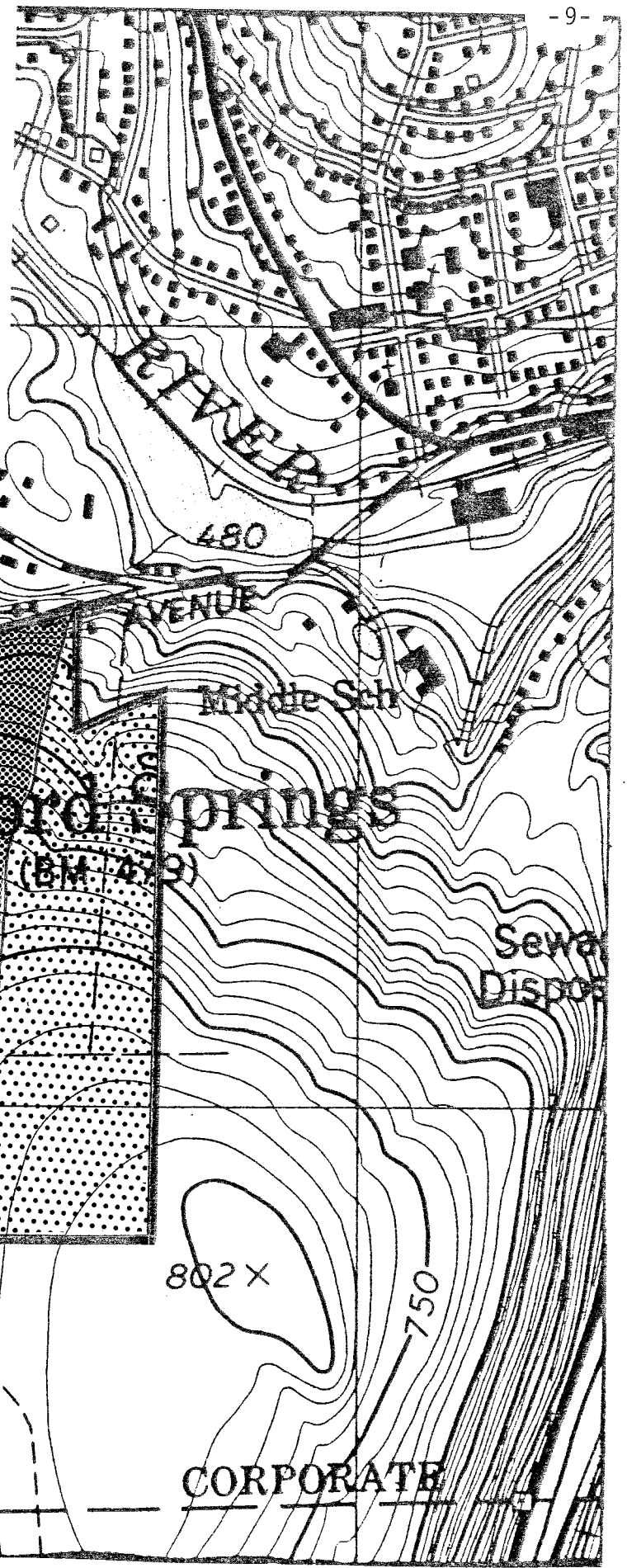
Hamilton Reservoir Formation



Monson Gneiss



1" = 660'



SURFICIAL GEOLOGY

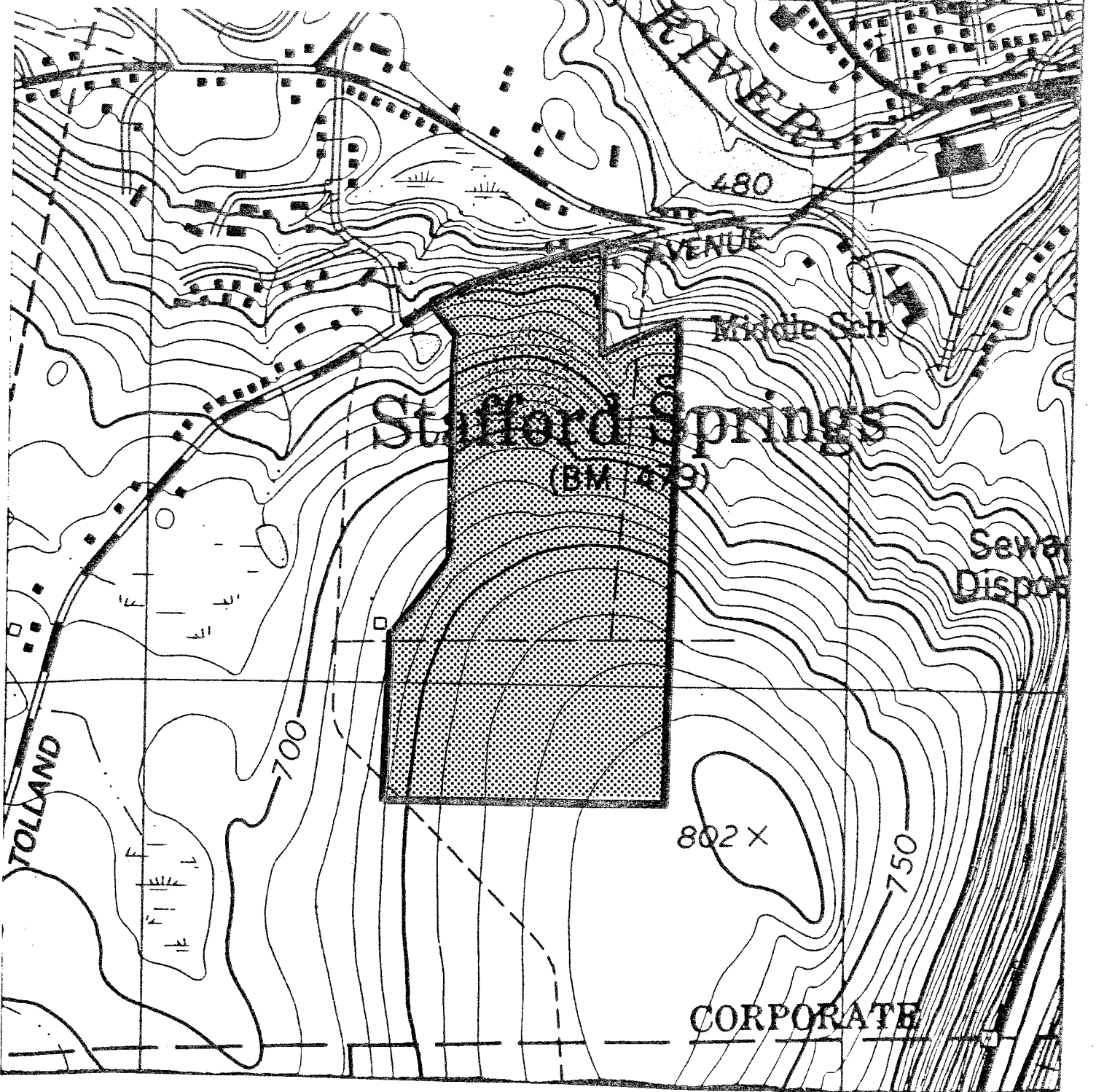
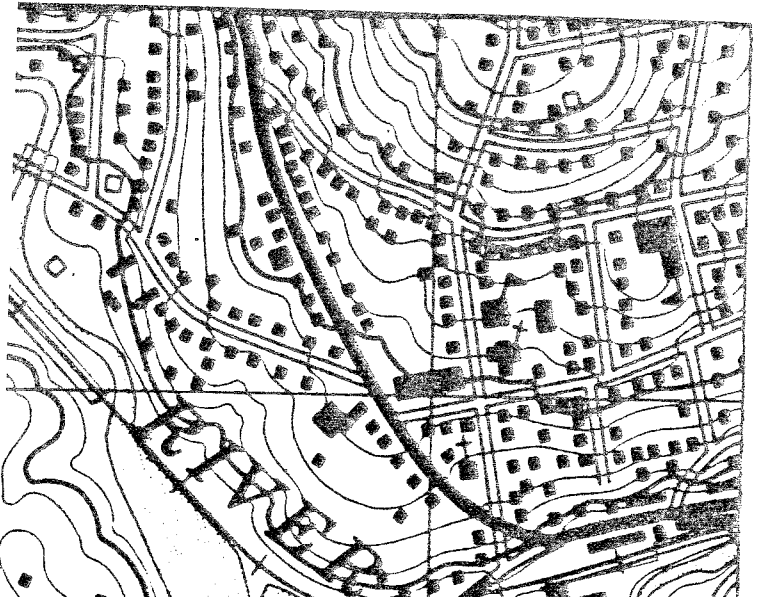


Till



Possible Shallow to
Bedrock Areas

1" = 660'



4. SOILS CONCERNS

SOILS

A consulting soil scientist should be retained by the applicant to provide a detailed soil survey of the parcel. The Soil Survey of Tolland County indicates that shallow to bedrock soils, upland soils that have large stones and boulders, wetlands soils and watercourses may exist on the parcel, these areas should be investigated in greater detail, identified in the field and shown on the detailed plan map. This information will be helpful to the developer in planning the project.

EROSION AND SEDIMENT CONTROL

A detailed soil erosion and sediment control plan should be developed and implemented for each phase of the development. It is suggested that the Town submit these plans to the Tolland County Soil and Water Conservation District for review prior to final approval. The plan's emphasis should be to minimize erosion of disturbed areas and to prevent silt from entering drainageways or the storm drainage system. (Also see Section 5)

DRAINAGE

The plans and supporting calculations for the storm drainage system were not available for review. It is suggested that the Town submit these to the Tolland County Soil and Water Conservation District for review prior to final approval. An area of special concern is the point of discharge of the drainage system into the Middle River. (Also see Section 6)

5. GEOLOGIC DEVELOPMENT CONCERNS

Town officials indicated on the review day that the proposed condominium development would be served by public water from the Connecticut Water Company and by public sewers tied into the Stafford Springs municipal system. As a result, the major geohydrologic concerns to be discussed are those which result during actual construction and the proposed residential use of the land.

The excavation of land for buildings and roads inevitably disturbs and mobilizes the finer soil particles, i.e., silt, clay, in the till covering the site. In any well-run activity there is a need to contain and filter disturbed water so that environmental damage such as silt-laden watercourses, eroded soils and complaints from adjoining properties do not occur. In Connecticut, Public Act No. 83-388 requires that a development such as the proposed project include a thorough sediment control plan that should be enforced. No erosion and sediment control plan accompanied the set of plans distributed to Team members on the review day. As mentioned above, a thorough sediment and erosion control plan should be developed by the applicant prior to an approval of the plans by the Town. An area of special concern will be the steeply sloping land in the northern parts.



Soil Conservation Service

Tolland County
24 Hyde Avenue
Rockville, CT 06066
875-3881

Scale 1" = 660'

Soil Survey Sheet #15



According to the accompanying soils map, an area of shallow to bedrock soil is mapped in the northcentral parts. If bedrock is encountered at shallow depth, there may be a need to blast for roads, foundations or water and sewer lines. It appears that most of this area is underlain by Monson Gneiss which is more resistant than the rocks comprising the Hamilton Reservoir Formation. The latter rock type is weaker and will probably yield to a back hoe within the upper two feet of the bedrock surface. Prior to commencing work in this area, it is recommended that subsurface exploration with a backhoe be conducted in order to determine a profile of the bedrock surface.

It should be pointed out that map GQ-1216 indicates an area east of the site that contains earthflow deposits. These deposits consist of incoherent masses of till, soil and rocks that have flowed down most steep till-covered slopes. Disturbing soils in steeply sloping areas of the site may instigate earthflow deposits on the site. It is recommended that disturbed areas be kept to a minimum.

6. HYDROLOGY

Surface runoff and probably groundwater to a large extent flows downslope towards the topographic swales on the site. Once water reaches these discharge points, it is then routed northward to the Middle River.

The condominium development as proposed, followed by the construction of building units, parking areas and roads would be expected to lead to increases in runoff from the site. Based on a storm drainage plan, road drainage from the site will be artificially collected in catch basins and routed to the Middle River. Consideration should also be given to tying roof leaders from the proposed buildings into the storm water system.

The plans as submitted were not comprehensive. They did not include pre- and post-development runoff computations and provisions for erosion and sediment control. Because of the moderate to steep slopes in the northern parts of the site, the erosion and sediment control plan should be of great concern. Also, the presence of moderately steep road grades in the northern parts will undoubtedly require that roads be sanded heavily during winter months. As a result, there is a good chance that road sand will accumulate in the catch basin on the site. Provisions will need to be made to remove the sand and debris on a regular basis. Also, streets should be swept in early spring.

The proposed road system seems to follow ridges quite well, which eliminates the need for some culverts. However, based on visual inspection of the site, it appears that the road may need to cross minor drainage channel(s). Detailed plans of all culvert crossings should be included in the storm water management plan.

In conclusion, it is strongly recommended that prior to approval of the plan, the applicant should be required to submit a detailed storm water management plan that includes hydrologic calculations and a thorough erosion and sediment control plan. According to the Water Quality Classification Map for The Upper Thames River Basin, the present surface water quality of Middle River is classified as Bc. A 'B' classification means that the water quality is suitable for recreational use; fish and wildlife habitat; agricultural and industrial supply and other legitimate uses including navigation. The subscript 'c' is to identify areas

suitable for cold water fisheries, including spawning, growth and passage. Since more stringent water quality criteria may apply, it is suggested that the applicant contact DEP's Water Compliance Unit (566-3245/2588), regarding their desire to discharge storm water (road drainage) emanating from the development to the Middle River.

7. TRAFFIC AND ACCESS

The field review indicated that the information and data made available prior to the site review (Traffic Impact Study, Storch Engineers), fairly describes the proposed development.

Relative to the transportation considerations, the area of concern is the impact of traffic generated by the development at Tolland Avenue, Route 140 and Tolland Avenue and the center of Town where Routes 190, 140 and 32 intersect.

Tolland Avenue does not operate at capacity and the consultant's report indicates a 24 hour count of 464 on Tolland Avenue (Storch Engineers) and Route 140, 1800 (ConnDOT).

The estimated trip generation by the consultant for the a.m. peak is 107 and the p.m. peak, 137. A review of the statistical data should be made by the consultant. The number of units, 244 with 488 parking spaces, could indicate a different trip generation rate based on local experience. The existing low traffic volumes on portions of the existing roadway network may not change the consultant's recommendations after the review.

The owner should transmit the necessary data to the State Traffic Commission for their determination if a certificate is required once the town has approved the development.

The intersection of Tolland and Park Street requires a review of traffic operations before and after the development to determine if the traffic generated by the site may require additional traffic control.

It would be appropriate for the Town of Stafford Springs to review land use and transportation in the center of Town. If development continues near the Town center, existing traffic operations during traditional peak hours will be further constrained. With the adoption of a land use and transportation plan the Town will be able to discuss how traffic operations can be improved in the Town center with the Connecticut Department of Transportation. (Also see Section 8)

8. PLANNING REVIEW

As mentioned at the field review meeting, held March 4, 1987, the Borough is in the drivers seat with this application. This means that if traffic is to

be the main concern at this time then the Borough must have some clear plans on what it is going to do for the traffic situation in the entire Borough. Without these plans the developer cannot make offers on how they will help alleviate traffic problems generated by their site development.

One point to be made is that there is only one exit and entrance planned for this entire development of 244 units. That will cause much traffic at the intersection of this project with Tolland Avenue. The optimum solution for this problem is another access and egress point. If this is not possible at this time, then the Borough's plans should suggest to the developer at what point in the boundary of their property there should be provisions for a future access and egress.

At the present time, the Town is having a consultant rewrite the zoning and subdivision regulations. The new regulations should have provisions in them that would allow the Commission the latitude to negotiate those items that they find desirable at the time of the application, as opposed to a regulation that is so rigid and locked into itself, that the Commission has no alternative but to accept the application as presented.

The present application offers good examples of those things that the Commission should or could be asking that the applicant provide, for example:

--topographic maps that show in great detail what exists on the site; i.e. rockoutcrops, stone walls, street and storm profiles, access points to rear property, etc.

--stone walls to be preserved, this is a large part of New England heritage and should be considered

--an observation tower at the height of land which will give a magnificent view in many directions

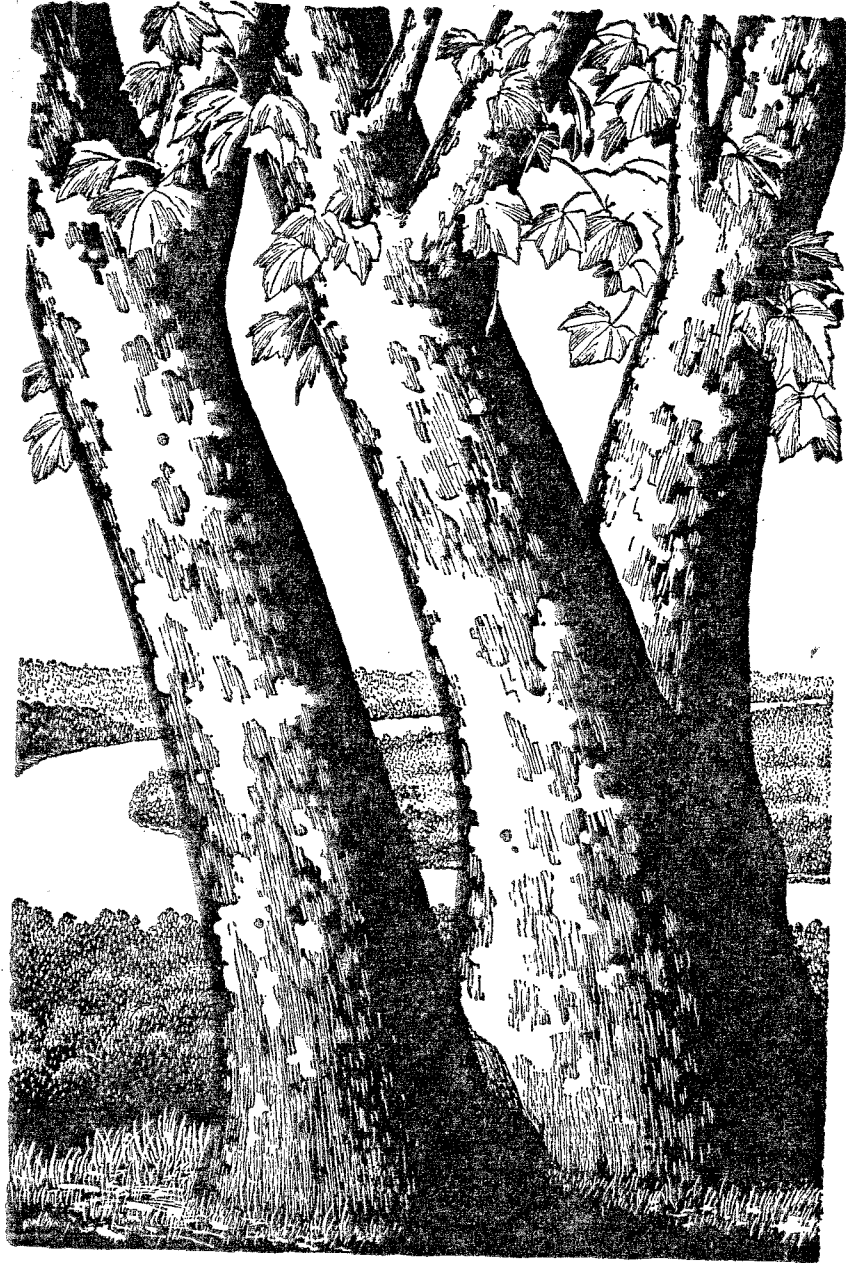
--chimneys for some of the buildings, even if they are false, to break up the monotonous roof lines

--all outside boards on the houses run in an horizontal direction, some running up and down or diagonally would give the eye a rest

--a planting plan should be submitted giving the Commission an idea of what to expect to be planted when the project is complete

--drainage behind the completed buildings, on the north side, is obviously inadequate as there has been some serious erosion already, a better drainage plan is needed

The Borough has a charm and desirability that the developer recognizes, and the Commission should not be reluctant to require that the development in their village be of the best quality available.



About The Team

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state, and regional agencies. Specialists on the Team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, archeologists, recreation specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area--an 86 town area.

The Team is available as a public service at no cost to Connecticut towns.

PURPOSE OF THE TEAM

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activities. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, sanitary landfills, commercial and industrial developments, sand and gravel operations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

REQUESTING A REVIEW

Environmental reviews may be requested by the chief elected officials of a municipality or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the Chairman of your local Soil and Water Conservation District. This request letter should include a summary of the proposed project, a location map of the project site, written permission from the landowner allowing the Team to enter the property for purposes of review, a statement identifying the specific areas of concern the Team should address, and the time available for completion of the ERT study. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information regarding the Environmental Review Team, please contact Elaine A. Sych (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.